

E 135 140 145 150 155 160 165 170 175 180
N 30

TROPICAL STORM IRMA 02W

BEST TRACK TC-02W
05 MAR-18 MAR 93
MAX SFC WIND 55KT
MINIMUM SLP 984MB

25

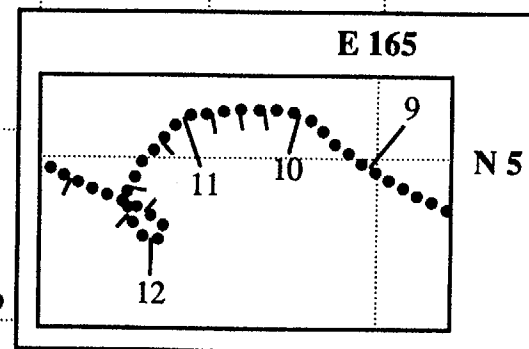
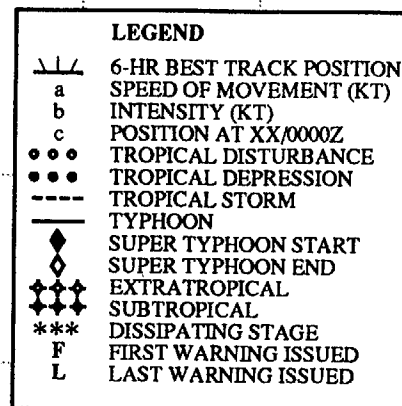
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15

10

5

EQ



DTG (Z)	SPEED (KT)	INTENSITY (KT)
10/00	2	30
10/06	2	30
10/12	3	30
10/18	2	25
11/00	2	25
11/06	6	25
11/12	6	25
11/18	5	25
12/00	8	25
12/06	7	25
12/12	7	30

L-17/06Z

F-10/00Z
TCFA

ABPW

39

TROPICAL STORM IRMA (02W)

I. HIGHLIGHTS

The first tropical cyclone to reach tropical storm intensity in the western North Pacific Ocean during 1993, Irma formed from a strong equatorial westerly wind burst which also generated a twin tropical cyclone in the Southern Hemisphere - Tropical Cyclone Roger (22P). After moving toward the southern Mariana Islands for 10 days, Irma briefly threatened Guam, moved northeastward and dissipated.

II. CHRONOLOGY OF EVENTS

March

060600Z - The disturbance was first mentioned on the Significant Tropical Weather Advisory south of the Marshall Islands based upon synoptic reports which indicated a weak low-level circulation near the eastern end of extensive cloudiness associated with the west wind burst.

092330Z - The consolidation of convection near the low-level circulation center led to issuance of a Tropical Cyclone Formation Alert (TCFA). Post analysis of satellite and synoptic data indicate Irma attained tropical depression status two days earlier at 080000Z.

100000Z - The first warning on Tropical Depression 02W closely followed the TCFA when a 30 kt (15 m/sec) surface wind report was received from Kosrae (WMO 91356).

121800Z - As the twin systems moved farther apart, Tropical Depression 02W was upgraded to Tropical Storm Irma based on a satellite intensity estimate of 35 kt (18 m/sec).

170600Z - The final warning was issued as Irma dissipated in a vertically sheared and stable trade-wind environment.

III. IMPACT

None. However, an accurate recurvature forecast allowed aircraft positioned at Andersen AFB, Guam for Team Spirit 93 to remain in-place.

IV. DISCUSSION

On 08 March 1993, a band of low-level westerlies stretched along the equator from about 120°E to the international date line. These westerlies were confined to very low latitudes by two near-equatorial troughs, one at about 5°N, the other at about 5°S.

At the eastern terminus of the equatorial westerly flow, two weak cyclonic circulations, symmetrical with respect to the equator, had formed (Figure 3-02-1). A ship report of 30 kt (15 m/sec) near the equator at 155°E indicated that an equatorial westerly wind burst had commenced. Three days later, on 10 March, the deep convective cloud -- which had been clustered along the equator (Figure 3-02-2) -- began to consolidate into tropical cyclone twins (Figure 3-02-3). (Note: the term, "tropical cyclone twins", implies a symmetry with respect to the equator.) By 13 March, the twin tropical cyclones -- Irma in the Northern Hemisphere, and Tropical Cyclone Roger (22P) in the Southern Hemisphere -- had become mature tropical cyclones heading westward and poleward into their respective hemisphere. As with other twin-cyclone events, by the time the tropical cyclones had matured, the cloudiness along the equator had collapsed (Lander, 1990). Roger (22P) and Irma continued an unbroken sequence of the occurrence of tropical cyclone twins once every year since 1991: Walt and Lisa, May 1991; Axel and Betsy, January 1992; and, Roger (22P) and Irma, March 1993.

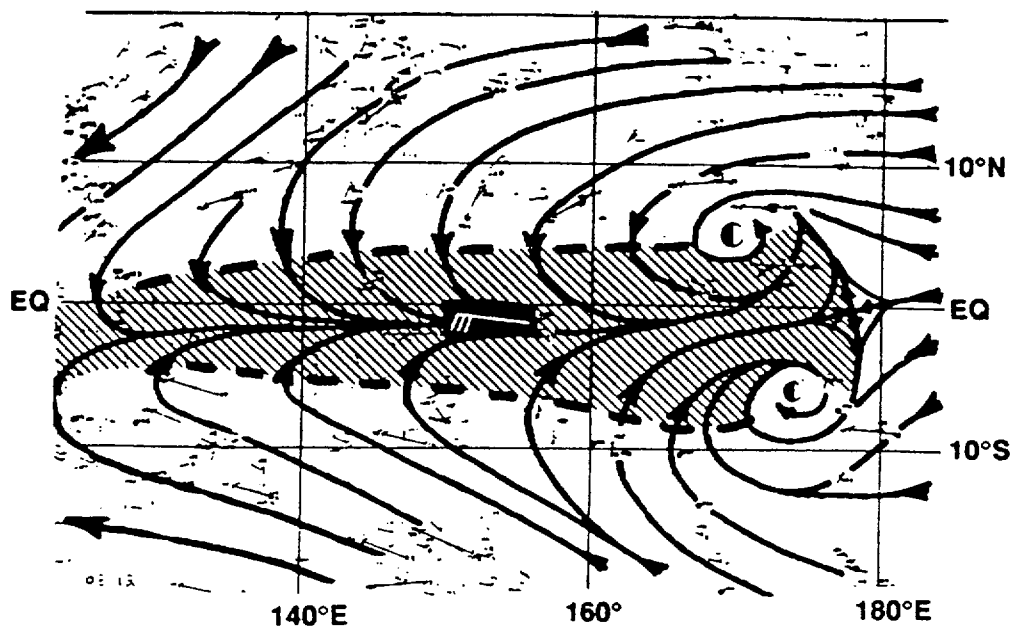


Figure 3-02-1 Streamline analysis of the low-level wind field at 081200Z March. Shaded region shows area of westerly wind flow. The cyclonic circulation centers later become the tropical cyclone twins — Irma and Roger (22P).

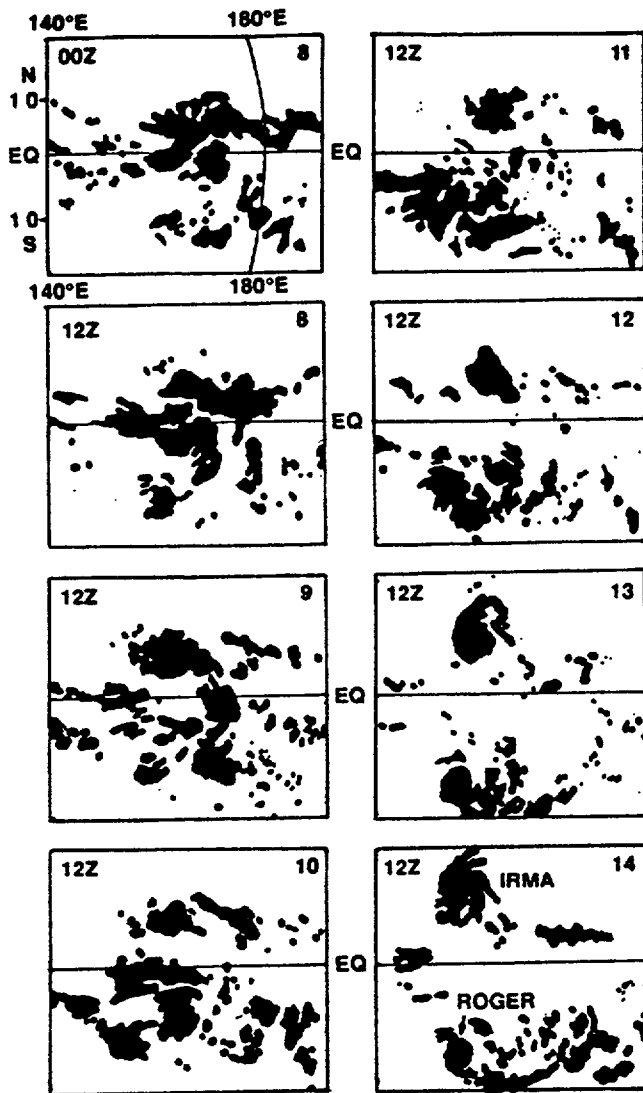


Figure 3-02-2 Cloud silhouettes for the period 8 to 14 March show the development of Irma and Roger (22P).

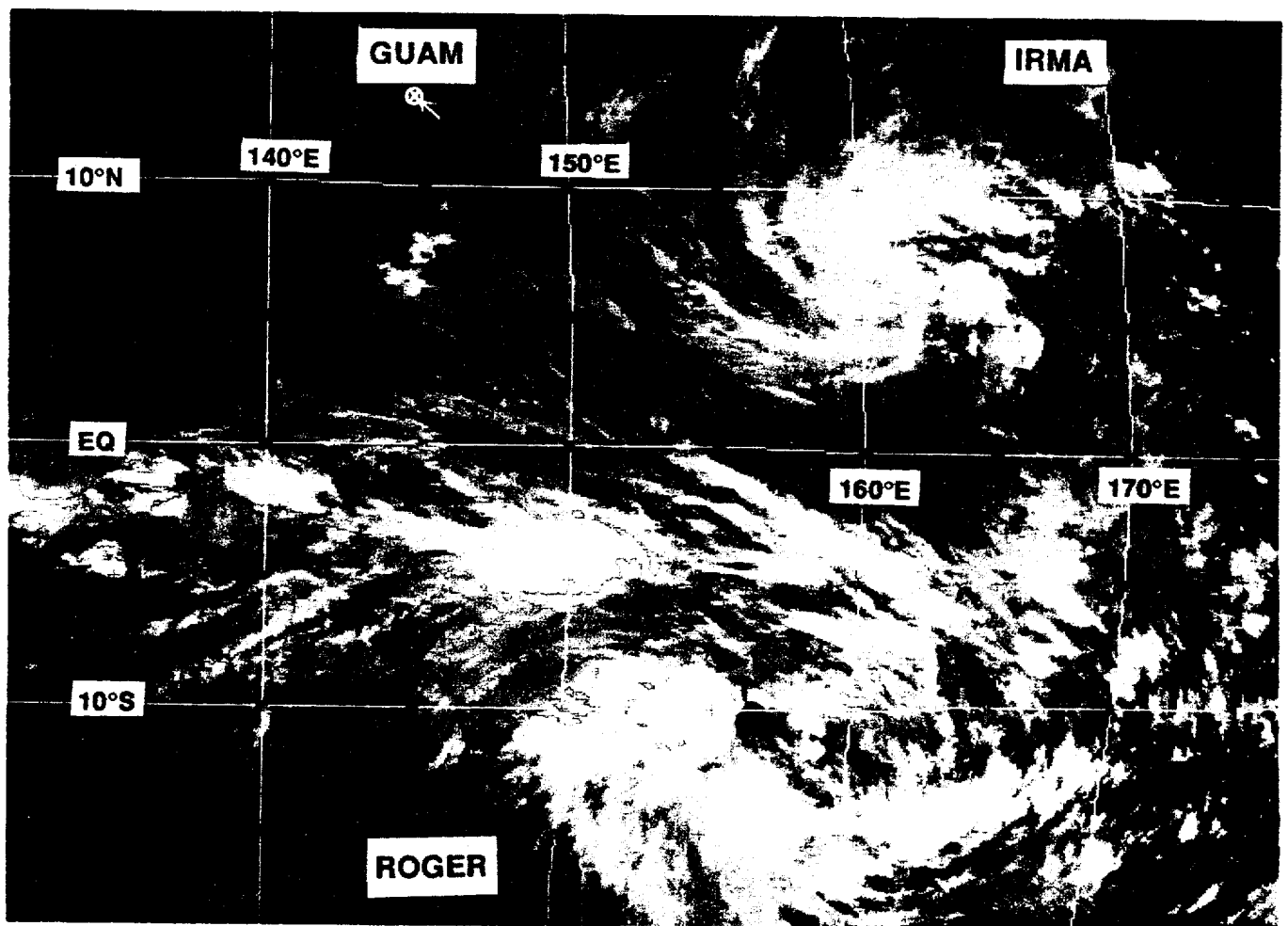


Figure 3-02-3 Tropical cyclone twins Irma and Roger (22P) are shown (120030Z March infrared GMS imagery).